

Available Cardiology Research Projects for TAMU MSRPP Medical Students

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#heartdisease #diabetes #nutrition #PTSD #biomarker

My laboratory located at the Texas Medical Center in Houston investigates the molecular and cellular mechanisms underlying cardiovascular diseases: ischemic (myocardial infarction), hemodynamic (hypertension), metabolic (diabetes, obesity) and post-traumatic stress disorders. Our ultimate goal is to provide clinical translation for the prevention and treatment of pathological stressful cardiac remodeling and to promote cardiac repair. My group has a consistent record of mentoring medical students and prepare them to be competitive for prestigious fellowships and awards.

These projects are supported by the National Institute of Health:

- **RhoE-mediated Sterile Inflammation Regulation in Acute Myocardial Infarction.** The main purpose is to explore the regulatory role of RhoE in sterile inflammation in response to myocardial infarction.
- **Epigenetic signaling and heart failure.** This project investigates the epigenetic mechanism of heart failure and uncover potential therapeutic targets.
- **Epigenetic signaling, pathological cardiac hypertrophy and Western diet.** The main purpose is to uncover the initial epigenetic signaling mechanism in the heart in response to Western diet and the associated deleterious effects on the development of pathological cardiac remodeling.

These projects are supported by the American Heart Association:

- **Establishment of an endogenous cardiac exosome tracking system.** The major goal is to generate and characterize a genetic tool mouse that enables to track and quantify the endogenous exosomes released from the heart in live in vivo.
- **Rho signaling in the development and treatment of myocardial infarction complication** The main purpose is to explore the mechanism of left ventricular aneurysm development during myocardial infarction and its relationship with Rho signaling.

This project is supported by the Department of Defense:

- **Increased risk of heart disease after posttraumatic stress disorder in women: role of gonadal hormones and potential preventative interventions.** The main purpose is to uncover the risk factors among gonadal hormones contributing to the development of PTSD in women.

This project is supported by the TAMHSC:

- **Brain, heart and systemic epigenetic and metabolic profile in posttraumatic stress disorder.** The goal is to define the epigenetic and metabolic profiles in brain, heart and blood following trauma exposure and emergence of PTSD-like symptomatology.